AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An microfluidic device comprising: an injection molded article having A) a substrate with a top surface and a raised channel architecture in which at least one channel is formed and defined across the top surface of the substrate and between raised sidewalls such that a floor of the channel is coplanar with the top surface, the channel having a width measured between the raised sidewalls, ~~comprising a channel, wherein the channel has a width, a bottom and a sidewall;~~ and B) a cover positioned over the substrate in alignment with the substrate, wherein the channel is accessed through an access port to the channel, the access port positioned on at least one of the cover and the bottom, wherein the ~~device~~ substrate and raised walls are ~~is~~ formed of an injection moldable polymeric material and the raised walls are formed in a common mold in situ with the substrate such that the raised walls are integrally formed with an extend outwardly from the substrate.

2. (Original) The microfluidic device of claim 1 wherein the access port to the channel is an opening on the channel bottom.

3. (Original) The microfluidic device of claim 1 wherein the access port to the channel is an opening on the cover.

4. (Currently Amended) The microfluidic device of claim 1 wherein ~~the channel bottom is coplanar with the top surface of the substrate, and~~ the channel sidewalls rises from the substrate surface at an angle between about 45 and 135 degrees~~, wherein the substrate, and the sidewall are composed of a polymeric material~~.

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Currently Amended) The microfluidic device of claim 1 wherein the device further ~~comprising~~ further includes an alignment device adapted to align the cover with the substrate.

10. (Original) The microfluidic device of claim 9 wherein the alignment device is a dowel pin positioned on the substrate.

11. (Original) The microfluidic device of claim 9 wherein the alignment device is a protrusion positioned on the cover.

12. (Original) The microfluidic device of claim 9 wherein the alignment device is accurate to better than 0.001 inch.

13. (Original) The microfluidic device of claim 1, the device further comprising a capillary positioned in the channel access port and inserted in the channel, wherein the access port has a diameter and the capillary has an outer diameter, and wherein the capillary outer diameter and the access port diameter are approximately equal.

14. (Original) The microfluidic device of claim 13 wherein an adhesive secures the outer circumference of the capillary to the access port.

15. (Original) The microfluidic device of claim 13 wherein the capillary is made of a second polymeric material that is transparent.

16. (Original) The microfluidic device of claim 1, the device further comprising a capillary positioned in the channel access port and inserted

in the channel, wherein the capillary has an inner cross-sectional area and the channel has a cross-sectional area and the capillary cross-sectional area and the channel cross-sectional area are approximately equal.

17. (Currently Amended) The microfluidic device of claim 1 wherein the device comprises a first and a second channel, the second channel positioned below the first channel which extends the top surface of the substrate, the first channel has a conduit extending from the bottom of the first channel to the second channel.

18. (Original) The microfluidic device of claim 1 wherein the device further comprises a structure selected from the group consisting of a reservoir structure, a detector window region, a microreactor and a distillation column, wherein a capillary connects the channel to the structure.

19. (Canceled)

20. (Original) The microfluidic device of claim 1 wherein the cover further comprises an interconnecting duct, the duct connects to at least one channel via the access port.

21. (Currently Amended) The microfluidic device of claim 1 wherein ~~the~~ each sidewall comprises an inner surface facing the channel and an outer surface opposite the inner surface; and wherein the cover comprises a bottom surface, the bottom surface facing the top surface of the substrate; the cover further comprising a protrusion that extends from the bottom surface of the cover; wherein the cover protrusion is ~~adjacent to~~ received between the inner surfaces of the sidewalls so as to enclose and seal the channel by providing a channel ceiling structure opposite the channel floor.

22. (Currently Amended) The microfluidic device of claim 1 wherein ~~the~~ each sidewall comprises an inner surface facing the channel and an outer surface opposite the inner surface; and wherein the cover comprises a bottom surface, the bottom surface facing the top surface of the substrate; the cover further comprising a pair of protrusions that extend[[s]] from the bottom surface of the cover, with a planar section being formed therebetween; wherein the cover protrusions are positioned ~~is~~ adjacent to the outer surfaces of the sidewalls so as to enclose and seal the channel by providing a channel ceiling structure opposite the channel floor.

23. (Original) The microfluidic device of claim 22 wherein an interstitial region is formed between the top surface of the substrate and the bottom surface of the cover in regions bordering the outer surface of the sidewall.

24. (Canceled)

25. (Original) The microfluidic device of claim 1 wherein the channel comprises a first linear section and a second linear section, wherein the first and second linear sections are perpendicular.

26. (Currently Amended) The microfluidic device of claim 1 wherein the channel ~~bottom~~ floor has a width of greater than 100 μm.

27. (Original) The microfluidic device of claim 1 wherein the channel sidewall is between 10 μm and 50 μm in height.

28. (Canceled)

29. (Currently Amended) The microfluidic device of claim 1 wherein the ~~polymeric~~ injection moldable material is a low melt viscosity polymer.

30. (Currently Amended) The microfluidic device of claim 29 wherein the ~~polymeric~~ injection moldable material is selected from the group consisting of polycyclic olefin polyalkane co-polymers, poly methyl methacrylate, polycarbonate, polyalkanes, polystyrenes and polymer blends containing a liquid crystalline polymer as an additive.

31. (Canceled)

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Canceled)

36. (Canceled)

37. (Canceled)

38. (New) The microfluidic device of claim 21, wherein tops of the sidewalls seat flush against the bottom surface of the cover.

39. (New) The microfluidic device of claim 22, wherein tops of the sidewalls seat flush against the bottom surface of the cover.